LDU2800

User’s Manual For LDU2800

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1. Introduction of LDU2800

LDU2800 is a new generation of our LED display controller. It can receive DVI signal (1920x1200@60Hz). After processing the DVI data, the internal VLSI（Very Large Scale Integration Circuits）of the LDU 2800 will send the processed data to the control board of the LED display through two-way Gibabit Ethernet. Specification of LDU2800 is shown in Table 1.

Table 1 specification of LDU2800

Item	specification
Input	DVI signal Max.:1920x1200@60Hz
Output	TWO RJ45 ports Each port can support up to 1920x300 pixels
Max. resolution	1920x600 pixels
Communication	USB/ Ethernet
Power supply	input:100-240 VAC, 50-60 Hz Max. power consumption: 10W
Working Temperature	-20~60℃
Working humidity	0-95%
Dimension (LxWxD)	360x435x44.45 mm

Image 1-1 LDU2800 (Indoor Version)

Image 1-2 LDU2800 (Outdoor Version)

2. Hardware

2.1 Control Buttons and Output Ports

The image2-1 is the interface diagram of LDU2800

Image 2-1 LDU2800 Operation Diagram

Table 2: Description of Components

NO.	Name	Function
1	Indicator Light Group 1	Prot 1: RJ45 port 1 indicator light Prot 2: RJ45 RJ45 port 1 indicator light When the light turns green, it indicates that the data is coming out from the corresponding port; if no light is on or the light is red, it indicates that no data is coming out from the corresponding port or the port does not work properly.
2	Indicator Light Group 2	Temp: Temperature indicator light Power: Power indicator light When the light turns green, it indicates that the data is coming out from the corresponding port; if no light is on or the light is red, it indicates that no data is coming out from the corresponding port or the port does not work properly.
3	Status Indicator Light	When the LDU2800 works properly, it would be on.
4	Brightness Control Switch	+： Turn up the brightness of the display -： Turn down the brightness of the display
5	Semi-on Switch	Turn down the current brightness by 50%
6	Mode	OUT DOOR：outdoor display mode IN DOOR：indoor display mode
7	Black	Display the completely back image
8	Freeze	Freeze the image
9	Test	Shows the testing image
10	Info	No function
11	F1	Press the button for 5 seconds, the LDU2800 will automatically restart.

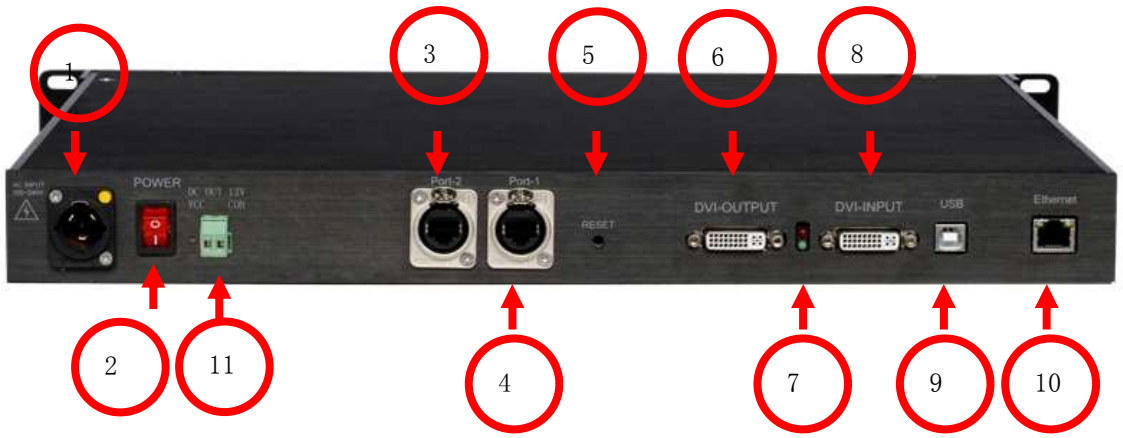
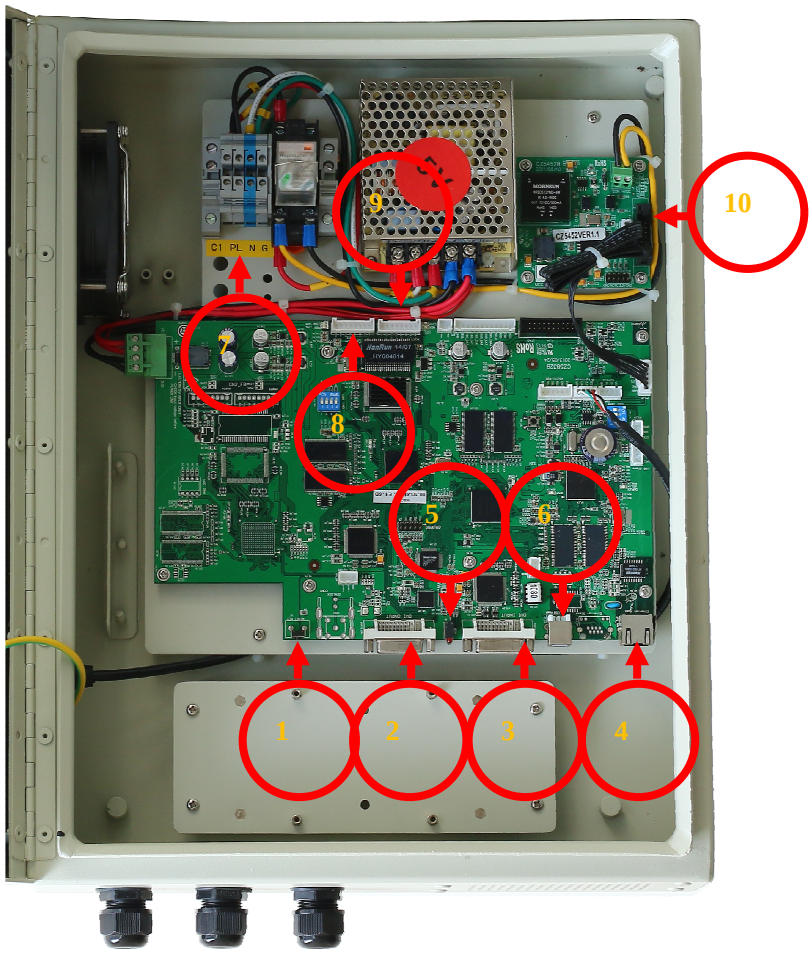


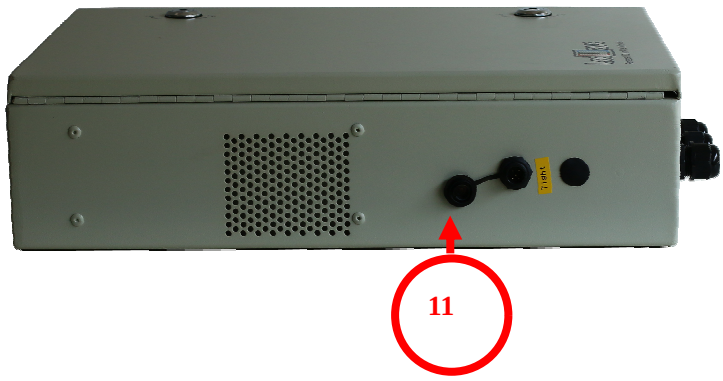
Image 2-2 Interface of LDU2800

Table 3 Description of Ports

NO.	Name	Function
1	Power Port	Provide 100-240AC power supply to LDU2800 though this port
2	Power Switch	Turn on or turn off the LDU power supply Once the LDU is power on, the indicator light will be on.
3-4	RJ45 port	Gigabit Etherent signal output port, which is used for connecting the LED screen. The largest resolution can be 1920 x300. If the amber light is normally on, it indicates that the LDU and the screen keep in good connection; otherwise it means the connection is abnormal, which needs to check the signal line that connecting the LDU and the screen. If the green light is blinking, it indicates that LDU is outputting the data; otherwise it means the system works abnormally. Maybe there is no effective DVI signal being input.
5	Reset Button	Reset the IP address of LDU2800 and restart the LDU2800
6	DVI output	DVI loop out, which mainly applied in multi-LDU cascade
7	System indicator light	Once the red light is blinking, it indicates that the CPU inside works properly, otherwise it means the system encounters a serious problem, and it cannot work properly. If the green light is blinking, it means that effective DVI signal is accepted.
8	DVI input	DVI signal input port. Can support signal of up to 1920x1200@60Hz
9	USB port	Not available at the moment
10	Ethernet port	For network control of the LDU2800 via the main internet access
11	PSU on/off interface /Light sensor interface	Control the on/off function of PSU/control the auto brightness of LED display

2.1 LDU2800 Outdoor Version





Interface Description

No.	Name	Function Description
1	Reset button	Reset the IP address of LDU2800 and restart LDU2800
2	DVI output	DVI loop output, to cascade multiple LDUs
3	DVI input	DVI signal input, Max 1920x1200@60Hz
4	Ethernet port	To control LDU2800 by internet (main port)
5	System indicator light	Red indicator light blinking means the CPU inside the LDU works well, or means the system comes across serious problem, cannot work well. Green indicator light blinking means effective DVI signal input comes in.
6	USB port	Read back IP address and status
7	Exterior power supply interface	Connect the power diagram from PDU to LDU
8-9	RJ45 interface	Gigabit Ethernet signal output interface. To connect the LED display. The max output 1920x300 dots. The yellow indicator light keeps on means the connection between the LDU and the LED display is well, or means the connection is abnormal and need to check the signal cable between the LDU and the LED display is well or not. The green indicator light blinking means the LDU is outputting data, or means the system works abnormal, maybe no effective DVI signal input.
10	ON OFF control panel	Blank screen or off the LED display at a fixed time.
11	Light sensor	Measure the environment luminosity

2.2 Cables

Signal cable between LDU and tile

Power cable between PSU and tile

Signal cable between cabinets

Network cable

DVI cable

Power cable between cabinets and the LDU

3. Application

This chapter will introduce three commonly-used work modes of LDU.

3.1 One Display Controlled By One LDU

Image 3-1 shows the structure diagram of how a LDU control a display.

LDU receives the DVI signal from computer or VPU, and sends the processed data to the LED screen after processing it.

Two random ports consist of a loop circuit in such application. In this case, if one of the ports works abnormally, it won't have an effect on the operation of the whole screen. This is of great significance on some important occasions.

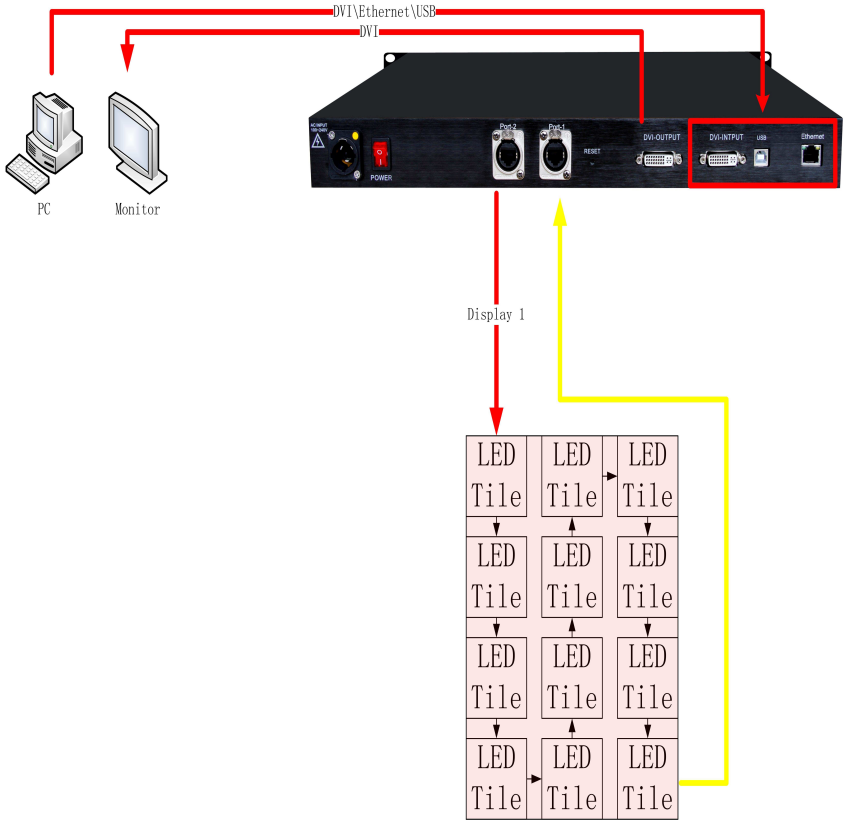


Image 3-1 Diagram of two displays controlled by one LDU

3.2 Two Displays Controlled By One LDU

Image 3-2 shows the structure diagram of how an LDU controls four displays.

In this system, there are four input /output ports of the LDU2800 respectively controlling four screens or four parts of a giant screen.

Because in this system, the signal does not shape a loop circuit, so if one of the ports works abnormally, the rest of cabinets would be affected, and they cannot work properly.

Therefore, this application is only suitable to some occasions which require lower reliability.

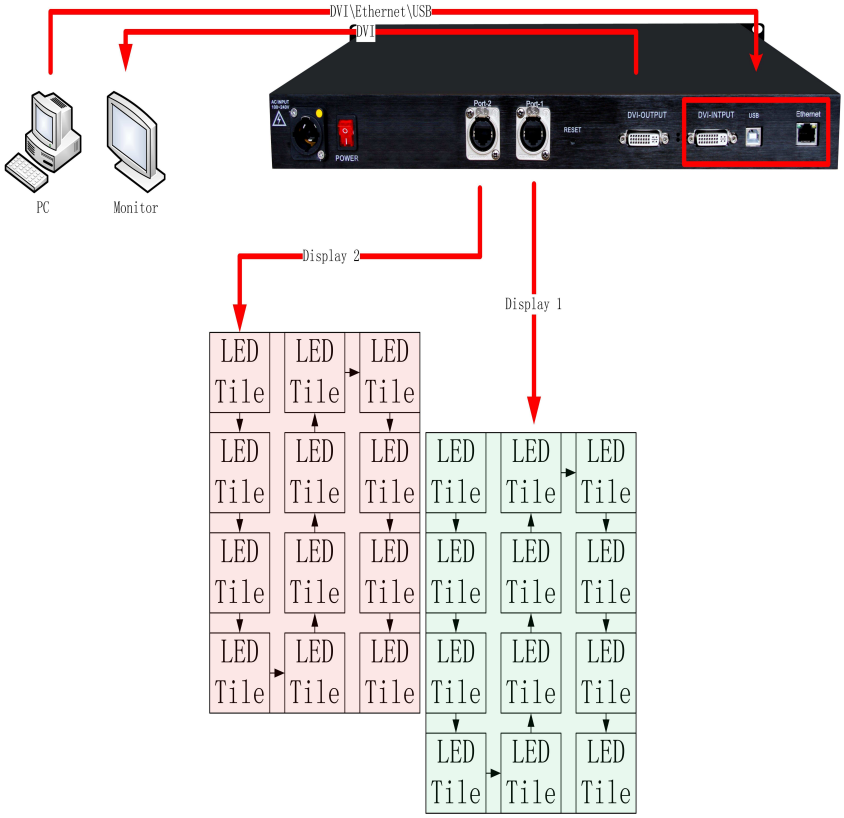


Image 3-2 Diagram of 4 displays controlled by 1 LDU

3.3 Multi-LDU Control of One Large Display

One LDU2800 can support the resolution up to 1920 X 680(without hot backup function). For the screen which exceeds this limit, multi-LDU cascade is recommended.

The system diagram is shown in the image 5.

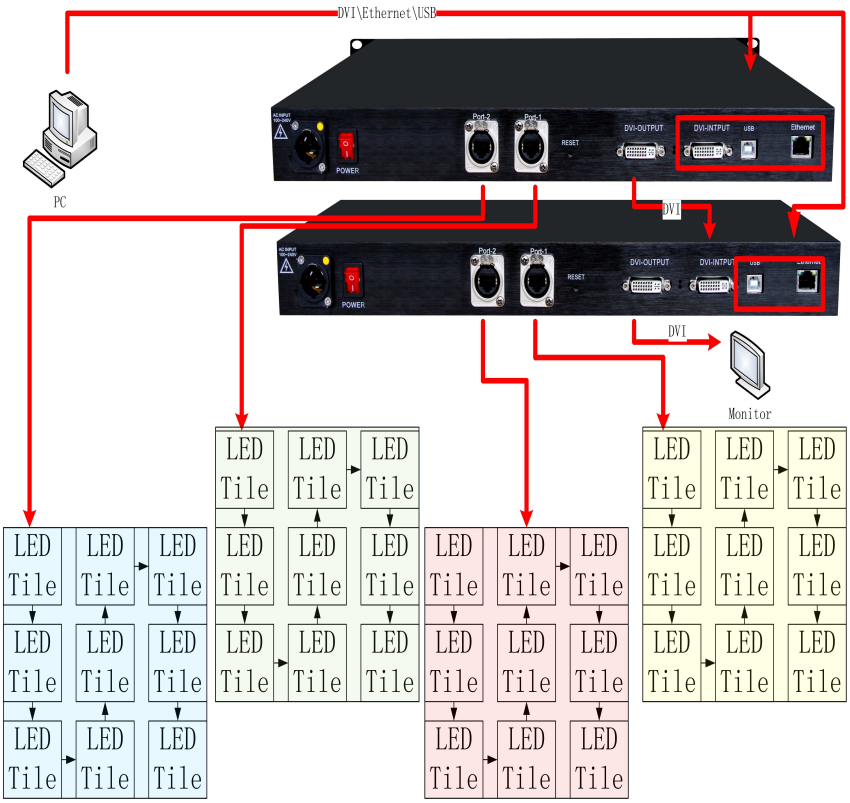


Image 3-3 Multi-LDU control of one large display

3.4 Operation Instructions for the LDU2800

Indicator light

Prot 1：RJ45 port 1 indicator light

Prot 2：RJ45 port 2 indicator light

Once any port connects with the cabinet, the indicator light will turn green.

When two random ports make a loop circuit (hot backup), the indicator lights of these ports will be green; And if the loop is broken, one of the cabinets will turn into back screen, but the others works properly.

Temp： Temperature indicator light

When the temperature of the cabinet keeps at a normal level, the indicator light turns green。Otherwise, the indicator light turns red,

Power： Power indicator light

When the power supply works properly, the indicator light turns green, and no information is found on the LCD panel; otherwise, the indicator light turns red.

When the external network connects with the Ethernet port/ Artnet port, the corresponding indicator light will turn green. If the external network connects with the Ethernet port and Artnet port at the same time, both the indicator lights will turn green.

The brightness of the screen can be adjusted by pressing the button "+" and "-". That means, if the current brightness is 50%, press the button "+", the brightness will be increased; while press the button "-", the brightness will be reduced. Each time you press the button, there will be a 5% change in the brightness.

Press the button "HALF", the brightness of the screen will be reduced by 50% no matter it is in outdoor working mode or indoor working mode. That means, when the current brightness of the screen is 40%, press the button "HALF", the brightness will reduce to only 20%。

Press the button "OUT DOOR" and "IN DOOR", the display will automatically switch over to corresponding working mode, that means, there are two displaying mode, the outdoor and the indoor, the brightness of the screen will change when the working mode is changed。

Press the button "BACK", the LDU2800 will change the screen into a completely black image,

Press the button "Freeze", the current interface will be frozen;

Press the button "Test", the LDU 2800 will enter the testing mode, each time you press the button, various testing mode can be chosen, 8 kind of testing signals is available in LDU2800,; then press the button for 5 seconds, it will exit the testing mode.

For white screen, red green blue

For red screen,

For green screen,

For blue screen,

For horizontal scanning,

For vertical sacnning,

For grey level testing,

For TV signal testing,

Press the button "Info", not available

Press the button "F1" for 5 seconds, LDU2800 can automatically restart,

Reset button

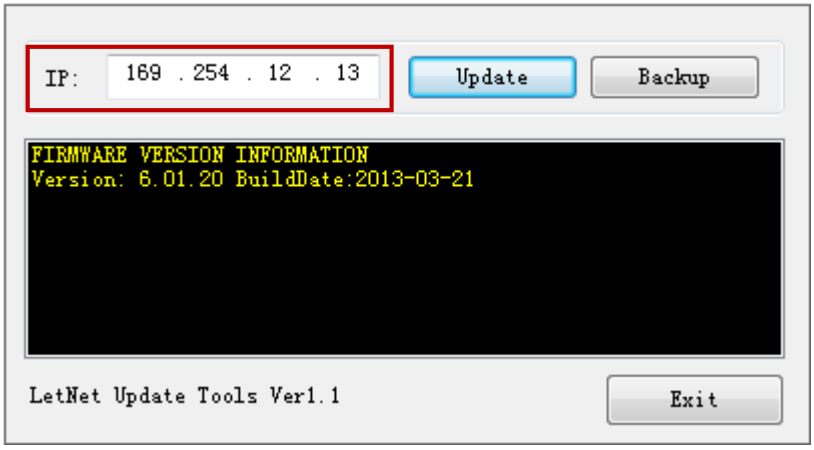
Press the button "reset" on the back of the LDU2800, LDU2800 will restart, then the IP address of Ethernet port will restore the factory settings. （Ethernet port：169.254.10.49）

4 Upgrade and backup CPU Programs of LDU2800

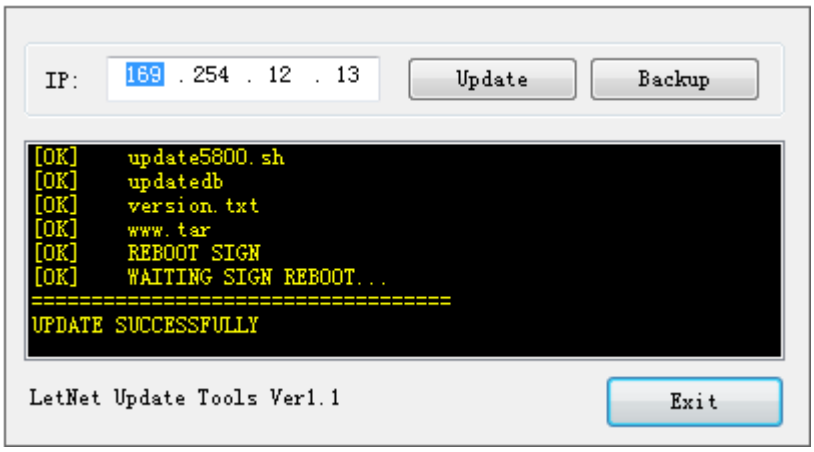
4.1 Upgrade

(1).Open firmware LetNetTools.exe.

(2) Input the LDU2800 IP address.

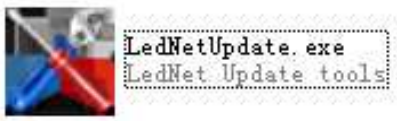


(3).Click the "Update" button to Update. If successfully, it will show "UPDATE SUCCESSFULLY". When we finished, click "Exit".

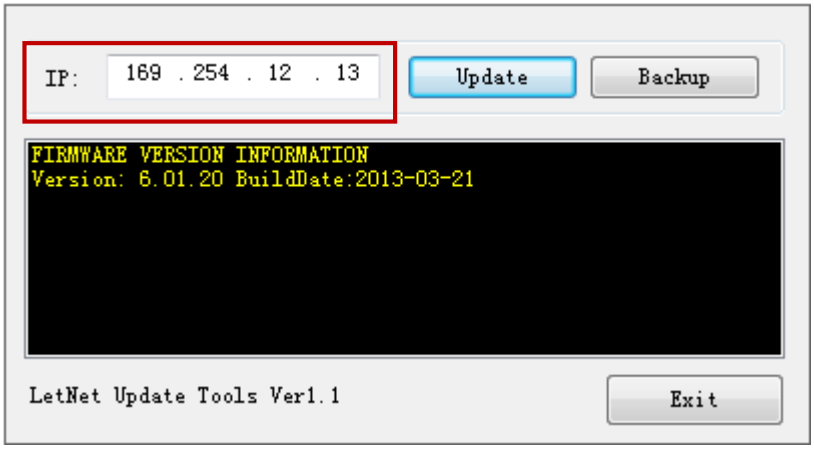


4.2 Backup

(1).Open firmware LetNetTools.exe



(2). Input the LDU2800 IP address.



(3).Click the "Backup" button to backup. backup will download all file in "backup.lst" list to backup folder .Backup successfully, it will show backup result as bellow. When we finished backup, click "Exit".